the agricultural product [products] to the [monochrometor] monochromator; and

a data processor connected to the [monochrometor] monochromator for identifying and determining the amount of constituents in the agricultural product [products].

2. (Amended)

The apparatus of claim 1 wherein the [monochrometor] monochromator further comprises:

a dispersive element immovably coupled to the [monochrometor] monochromator; and

a photodiode array immovably coupled to the [monochrometor] monochromator for detecting radiation dispersed by the dispersive element.

In claim 4, line 3, and claim 5, line 7, replace "products" with --product--.

12. (Amended)

A method of measuring constituents of harvested agricultural products comprising the steps of:

providing a combine for harvesting a field of crops;

providing a [monochrometor] monochromator coupled to the combine, the [monochrometor] monochromator including a photodiode array and a fixed dispersive element;

providing a stream of moving agricultural product within the combine;

providing a radiation source coupled to the combine near [a source of the agricultural product] the stream of moving product harvested by the combine;

applying radiation to the stream of moving product;

sensing radiation that is reflected off of the stream of moving product; and

analyzing the sensed radiation to determine various constituents of the agricultural product.

13. (Amended)

A method of analyzing on a combine an agricultural product harvested from a test plot comprising the steps of:

harvesting the agricultural product with a research combine;

collecting a sample of the product and containing the sample in a chamber;

weighing the chamber to determine the weight of the sample;

sensing the moisture content of the sample in the chamber;

sensing the volume of the sample in the chamber; and

determining the identity and amount of constituents in the sample, further comprising the steps of:

allowing the sample of the product in the chamber to flow out of the chamber,

irradiating the sample with radiation as it flows out of the chamber,

sensing radiation which reflects off of the sample, and

analyzing the spectrum of the reflected radiation to determine the identity and amount of constituents in the sample.

Please insert the following new claims:

~~12~~ 14. (New)

The apparatus of claim 1, the device further comprising a door disposed below a source of harvested product and disposed above the sensing location, wherein the door can be selectively opened to form the flow of harvested product past the sensing location.

~~15~~ 13. (New)

The apparatus of claim ~~14~~ 12, wherein the rate of flow of harvested product past the sensing location can be adjusted by controlling the amount that the door is opened.

~~16~~ 14. (New)

The apparatus of claim ~~14~~ 12, wherein the door is controlled by a pneumatic door cylinder.

~~17~~ 15. (New)

The apparatus of claim 1, the device further comprising an elevator disposed above the sensing location, wherein the harvested product flow downward from the elevator to form the flow of harvested product past the sensing location.

~~18~~ 16. (New)

The apparatus of claim 1, wherein the harvested product is comprised of corn.

19. (New)

The apparatus of claim 12, wherein the step of providing a stream of moving agricultural product within the combine further comprises the steps of:

collecting a sample of the product in a chamber; and

providing an aperture in the chamber for allowing the product to flow downward forming the stream of moving agricultural product.

20. (New)

The apparatus of claim 19, further comprising the step of providing a door for adjusting the size of the aperture in the chamber.

21. (New)

The apparatus of claim 12, further comprising the step of adjusting the rate of flow of the stream of agricultural product.

22. (New)

An apparatus for measuring constituents of harvested grain on a combine comprising:

a sensor coupled to the combine at a location proximate a flow of harvested grain;

a light source for irradiating the grain as the grain flows past the sensor, the light source being positioned such that light irradiated toward the grain is sensed by the sensor;

a monochromator having no moving optical components located in the combine, the monochromator being operatively connected to the sensor such that light sensed by the sensor is transmitted to the monochromator; and

a processor operatively connected to the monochromator for identifying and determining the amount of constituents in the grain.

a3 cont.

23. (New)

The apparatus of claim 22, wherein the light source is positioned such that the light is reflected off of the grain and sensed by the sensor.

24. (New)

The apparatus of claim 22, wherein the light source is positioned such that the light is transmitted through the grain and sensed by the sensor.

REMARKS

Overview

Claims 1-13 are pending in the present application. The Examiner has objected to the specification for a number of informalities. All of the claims have been rejected under § 103 as being unpatentable over the combination of the Gerrish, Rosenthall, Goetz, Stearns, and Clarke references.

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